

IN THE SPECIFICATION

Please amend the middle paragraph on page 12 as set forth below.

Please amend the paragraph beginning on page 18 and continuing through page 20 as set forth below.

Another potential embodiment of an elongated optical fiber mounting groove, designated 22, is illustrated in FIG. 6. In this embodiment groove 22 has a generally V-shaped cross-section fabricated by a process of metal scribing. The metal scribing process produces a shallow V-shaped groove with precise depth and sidewall angle. Groove 22 has the advantage of requiring the removal of less material from stiffening plate 16 and generally a simpler fabrication process but provides less support for optical fiber 14. It will be understood that groove 22 can be formed so that optical fiber 14 is wholly embedded therein if more support is desired and the amount of material removed is not a problem.

Laminate 50 and bond pads 52 allow affixing light elements, such as vertical cavity surface emitting laser (VCSEL) 60 and photo detector 62, directly over vias 54 and 56 leading to reflecting surfaces 25 and 27 associated with opposed ends 24 and 26 of optical fiber 14. The light elements can either self-align using eutectic solder bumps 64 or, for non eutectic solder bumps, be machine aligned and positioned precisely over reflecting surfaces 25 and 27. It will of course be understood that other solders, welds, or electrical and physical connecting materials can be used if convenient. In this embodiment a VCSEL 60 is positioned, electrically connected, and physically held over via 54 using eutectic solder balls 64. Also, a photo detector 62 is positioned, electrically connected, and physically held over via 54 using eutectic solder balls 64. It should be understood that no-lead solder and/or other solders can be used in place of eutectic solder balls if desired. In this case, the device being attached may require vision alignment and precision placement. Other supporting semiconductor die (not shown) are clustered around VCSEL 60 and photo detector 62 and electrically connected to each other and to VCSEL 60 and photo detector 62 by conductive traces in laminate 50. Thus, electrical signals at one location are converted to optical signals (light pulses) by VCSEL 60 and directed into optical fiber 14 by reflecting surface 25. The light pulses

are directed onto photo detector 62 at a remote location by reflecting surface 27 and converted back to electrical signals, which are then coupled to a cluster of semiconductor die (not shown) adjacent photo detector 62. It will be understood that multiple numbers of optical interconnects can be incorporated on the same printed circuit board. In general, both VCSEL 60 and photo detector 62 are encapsulated, after assembly, using a suitable optical under encapsulant to provide environmental protection.

The Requirement for Restriction

Restriction has been required to one of the following inventions:

I. Group I, claims 1-25, drawn to an interconnect apparatus having specific elements, classified in Class 385, subclass 137.

II. Group II, claims 26-28, drawn to a method of manufacturing an optical apparatus using encasing means, classified in Class 438, subclass 27.

The Election

For purposes of immediate examination, Applicant hereby elects the following invention:

I. Group I, claims 1-25, drawn to an interconnect apparatus having specific elements, classified in Class 385, subclass 137.

This election is made with traverse and without prejudice to the subsequent filing of a continuing or divisional application directed to the non-elected invention.